



EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIGUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Los Angeles Regional Water Quality Control Board

April 2, 2014

Certified with Return Receipt
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Mr. Morton Price
City of Los Angeles, Department of Public Works
1149 South Broadway, Suite 120
Los Angeles, CA 90015

**MODIFICATION OF GENERAL WASTE DISCHARGE REQUIREMENTS FOR
GROUNDWATER CLEANUP AT PETROLEUM HYDROCARBON FUEL, VOLATILE
ORGANIC COMPOUND AND/OR HEXAVALENT CHROMIUM IMPACTED SITES
FIRE STATION NO. 3
108 NORTH FREMONT AVENUE, LOS ANGELES
(ORDER NO. R4-2007-0019, SERIES NO. 242; CI NO. 10009) (UST FILE NO. 900120361)**

Dear Mr. Price:

On January 14, 2014, the Executive Officer of this Regional Board issued Waste Discharge Requirement (WDR) Order No. R4-2007-0019 to the City of Los Angeles (hereinafter Discharger) to inject persulfate activated with stabilized hydrogen peroxide (SHP) and Oxygen Release Compounds (ORC[®]) to remediate groundwater contamination beneath the site.

On your behalf, URS submitted a WDR Modification Request letter dated February 12, 2014 to also include injection of caustic activated persulfate. The caustic-activated persulfate is a sodium hydroxide and sodium persulfate solution. Caustic-activated persulfate was tested in the earlier bench scale study for the site but was not formally included in the June 15, 2012 remedial action plan (RAP).

In the WDR Modification Request, URS proposed to conduct Phase I of the RAP before Phase 2 is implemented (caustic activated persulfate will be tested first before SHP) because of the potential challenges with peroxide injection in the low permeability site lithology. URS proposed to inject the caustic activated persulfate into direct push injection locations during the Phase I field pilot testing.

URS further indicates that no changes to the Monitoring and Reporting Program (MRP) would be required. However, the January 14, 2014 MRP (page T-3) listed only SHP and ORC to be injected. The MRP is now revised to include caustic-activated persulfate, and to collect groundwater samples from newly installed monitoring well MW-17.

Revised Description of Waste Discharge

Phase I Pilot Test

- URS proposed to advance a total of eight direct push locations in the groundwater around wells MW-6 and MW-11 and inject caustic-activated persulfate. Four additional injection points will be advanced near well MW-5 to be used for ORC[®] injection. URS indicated that

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the ORC[®] is assumed to be a magnesium peroxide formulation. The injection points will be advanced to depths from 20 to 34 feet bgs (Figure 5).

- A total of 1,800 gallons of 25% sodium hydroxide solution will be injected into the eight direct push locations around wells MW-6 and MW-11. A total of 1,032 gallons of sodium persulfate will be mixed with water and injected at a 36% concentration around wells MW-6 and MW-11. The persulfate and caustic solutions will be injected as separate streams but concurrently into each injection interval.
- A total of 5,120 gallons of 10% hydrogen peroxide will be injected into eight direct push locations around wells MW-1 and MW-4. An estimated total of 134 gallons of sodium citrate will be required to stabilize the peroxide. A total of 1,032 gallons of sodium persulfate will be mixed with water and injected at 36% concentration into each boring. The persulfate will be injected as a separate stream but concurrently with the stabilized peroxide into each injection interval. A total of 400 pounds of ORC[®] will be injected into 4 injection points around well MW-5.

Phase II Injection

- The Phase II Injection proposal will not change. However, Phase II of the implementation will utilize the more successful technologies for full scale implementation based on field pilot testing results in Phase I (Figure 6).

Regional Board staff has determined that the proposed discharge meets the conditions specified in Order No. R4-2007-0019, "*Revised General Waste Discharge Requirements for Groundwater Remediation at Petroleum Hydrocarbon Fuel, Volatile Organic Compound and/or Hexavalent Chromium Impacted Site (General WDRs)*" adopted by the Los Angeles Regional Water Quality Control Board on March 1, 2007.

The WDR is effective for both the pilot test and full scale implementation. You must notify Regional Board staff when the pilot test is completed and ready for full scale remediation.

Enclosed are the WDRs, consisting of General WDRs Board Order No. R4-2007-0019, and Revised Monitoring and Reporting Program (MRP) No. CI-10009 and Standard Provisions.

The Revised Monitoring and Reporting Program requires you to implement the monitoring program on the effective date of this enrollment under Regional Board Order No. R4-2007-0019. All monitoring reports shall be sent to the Regional Board, ATTN: Information Technology Unit.

When submitting monitoring or technical reports to the Regional Board, per these requirements, please include a reference to Compliance File No. CI-10009, which will assure that the reports are directed to the appropriate file and staff. Do not combine other reports with your monitoring reports. Submit each type of report as a separate document.

In accordance with regulations adopted by the State Water Resource Control Board (State Board) in September 2004 regarding electronic submittal of information (ESI), the Discharger has been electronically submitting Underground Storage Tank (UST) Program technical reports to the State Board GeoTracker under the UST Global ID# T0603700532. To comply with this MRP, the Discharger shall upload the MRP monitoring reports to GeoTracker under the Global

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ID# WDR 100014072. For more information regarding the new WDR Global ID, please see the ESI training video at:
<https://waterboards.webex.com/waterboards/ldr.php?AT=pb&SP=MC&rID=44145287&rKey=7dad4352c990334b>.

To avoid paying future annual fees, please submit a written request for termination of your enrollment under the general permit in a separate letter when your project has been completed and the permit is no longer needed. Be aware that the annual fee covers the fiscal year billing period beginning July 1 and ending June 30, the following year. You will pay the full annual fee if your request for termination is made after the beginning of the new fiscal year beginning July 1. We are sending a copy of Order No. R4-2007-0019 only to the applicant. A copy of the Order will be furnished to anyone who requests it, or online at:
http://www.waterboards.ca.gov/losangeles/board/decisions/adopted_orders/general_orders/r4-2007-0019/r4-2007-0019.pdf.

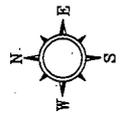
If you have any questions, please contact Dr. Eric Wu at (213) 620-6119 or email Eric.Wu@waterboards.ca.gov for administrative issues. Questions regarding the underground storage tank issues should be forwarded to Ms. Chandra Tyler at (213) 576-6782 or email Chandra.Tyler@waterboards.ca.gov.

Sincerely,


Samuel Unger, P.E.
Executive Officer

Enclosures: Revised MRP No. CI-10009

cc: Kathy Jundt, State Water Resources Control Board, UST Cleanup Fund
Phuong Ly, Water Replenishment District of Southern California
Eloy Luna, City of Los Angeles Fire Department, Underground Tanks
Hani Malki, City of Los Angeles Fire Department, Underground Tanks
Jennifer Nobui, URS
Jude Francis, URS



LEGEND

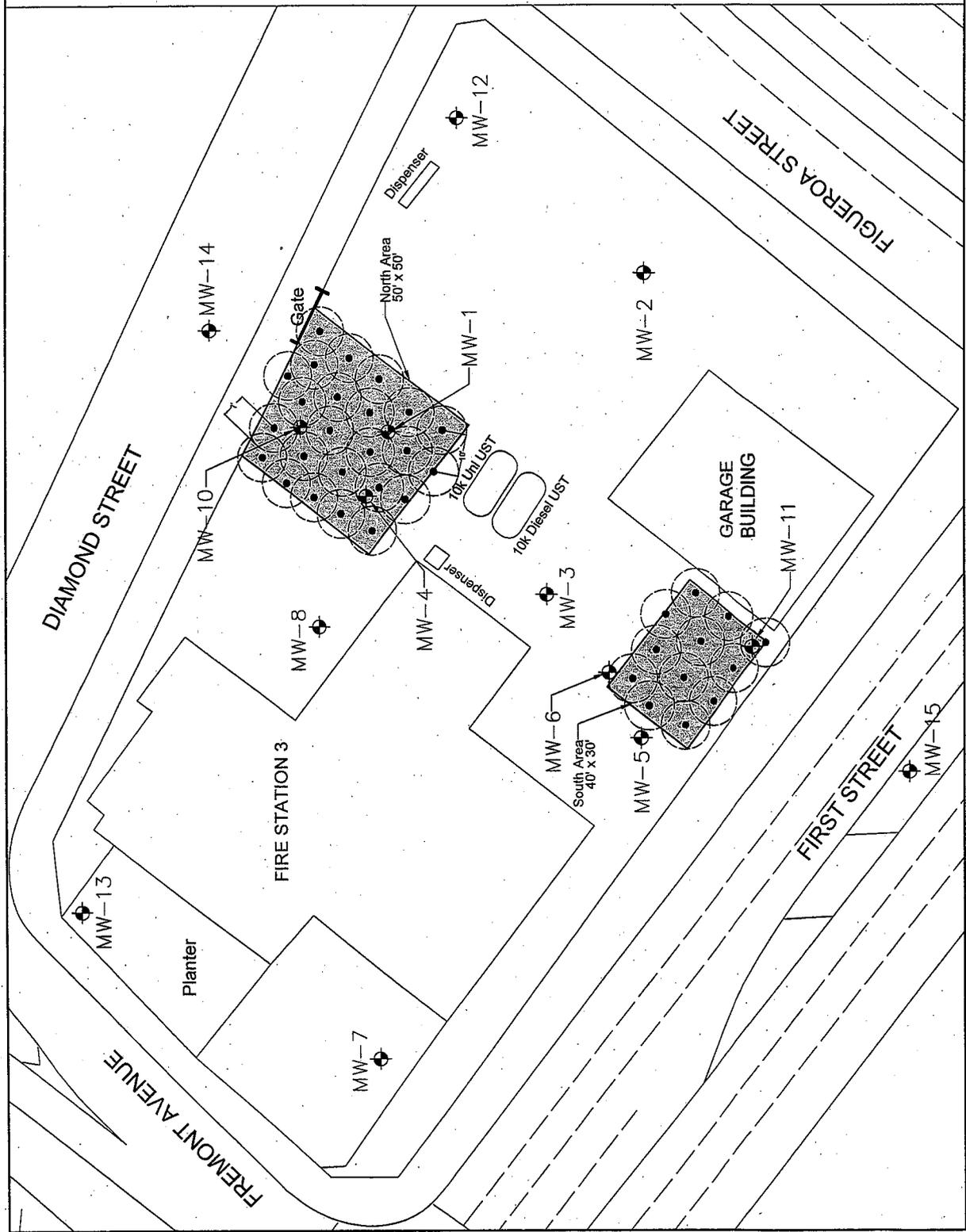
- MW-1 GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- PROPOSED EXTENT OF REMEDIATION
- PROPOSED DIRECT PUSH INJECTION POINT

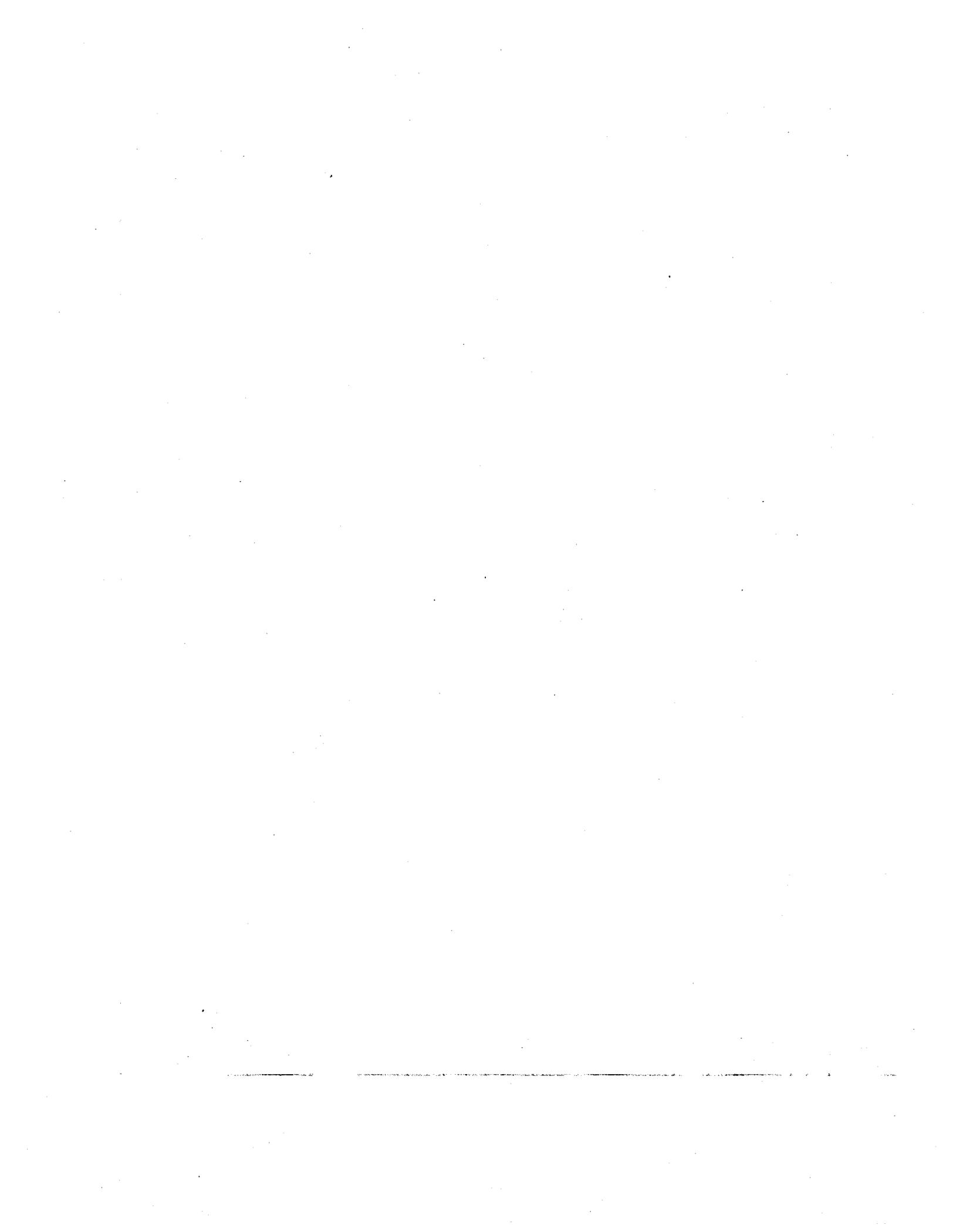


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PHASE II INJECTION POINTS

Proj. No.: 290010	Date: June 2010
Project: Fire Station 3 Remediation	Figure: 6
Los Angeles, California	





STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION
REVISED MONITORING AND REPORTING PROGRAM NO. CI-10009
FOR
FIRE STATION NO. 3
108 NORTH FREMONT AVENUE, LOS ANGELES
(UST CASE NO. 900120361)
ORDER NO. R4-2007-0019, SERIES NO. 242

I. REPORTING REQUIREMENTS

- A. The City of Los Angeles (hereinafter Discharger) shall implement this monitoring program on the effective date of this Monitoring and Reporting Program (MRP). The first monitoring report under this program, for January – June 2014, shall be received at the Regional Board by **July 15, 2014**. Subsequent monitoring reports shall be received at the Regional Board according to the following schedule:

<u>Monitoring Period</u>	<u>Report Due Date</u>
January – June	July 15 th
July – December	January 15 th

If there is no discharge or injection during any reporting period, the report shall so state. Monitoring reports must be addressed to the Regional Board, Attention: Information Technology Unit.

- B. By January 30 of each year, beginning January 30, 2015, the Discharger shall submit an annual summary report to the Regional Board. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous calendar year. In addition, the Discharger shall explain the compliance record and the corrective actions taken, or planned, which may be needed to bring the discharge into full compliance with the waste discharge requirements (WDR).
- C. Laboratory analyses – all chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory certified for such analyses by the California Department of Public Health Services Environmental Laboratory Accreditation Program (ELAP). A copy of the laboratory certification shall be provided each time a new and/or renewal certification is obtained from ELAP.
- D. The method limits (MLs) employed for effluent analyses shall be lower than the permit limits established for a given parameter, unless the Discharger can demonstrate that a particular ML is not attainable and obtains approval for a higher ML from the Regional Board Executive Officer (Executive Officer). The Discharger shall submit a list of the analytical methods employed for each test and the associated laboratory quality assurance/quality control (QA/QC) procedures upon request by the Regional Board.

- E. Groundwater samples must be analyzed within allowable holding time limits as specified in 40 CFR Part 136. All QA/QC samples must be run on the same dates when samples were actually analyzed. The Discharger shall make available for inspection and/or submit the QA/QC documentation upon request by Regional Board staff.
- F. Each monitoring report must affirm in writing that "All analyses were conducted at a laboratory certified for such analyses by the California Department of Public Health Services, and in accordance with current United States Environmental Protection Agency (USEPA) guideline procedures or as specified in this Monitoring Program." Proper chain of custody procedures must be followed and a copy of the completed chain of custody form shall be submitted with the report.
- G. Each monitoring report shall contain a separate section titled "Summary of Non-Compliance" which discusses the compliance record and the corrective actions taken or planned that may be needed to bring the discharge into full compliance with WDRs. This section shall be located at the front of the report and shall clearly list all non-compliance with WDRs, as well as all excursions of effluent limitations.
- H. The Discharger shall maintain all sampling and analytical results: date, exact place, and time of sampling; dates analyses were performed; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.
- I. If the Discharger performs analyses on any groundwater samples more frequently than required by this Order using approved analytical methods, the results of those analyses shall be included in the report.
- J. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized to demonstrate compliance with the requirements and, where applicable, shall include results of receiving water observations.
- K. The Discharger should not implement any changes to the Monitoring and Reporting Program prior to receiving the Executive Officer's written approval.
- L. In accordance with regulations adopted by the State Water Resource Control Board (State Board) regarding electronic submittal of information (ESI), the Discharger has been electronically submitting Underground Storage Tank Program (UST) monitoring reports to the State Board GeoTracker system under the UST Global ID T0603700532. To comply with the MRP, under this WDRs, the Discharger shall upload the WDRs monitoring reports to the Geotracker under the two Global IDs T0603700532 (continuing) and WDR 100014072 (new).

II. CHEMICAL OXIDANT PERSULFATE ACTIVATED WITH STABILIZED HYDROGEN PEROXIDE, ORC® and CAUSTIC-ACTIVATED PERSULFATE MONITORING REQUIREMENTS

The semi-annual reports shall contain the following information regarding the injection activities.

1. Location map showing placement locations, used for the chemical oxidants.
2. Written and tabular summary defining the quantity of chemical oxidant injected to the groundwater and a summary describing the days on which the injection system was in operation.

CONSTITUENT	UNITS	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Persulfate activated with stabilized hydrogen peroxide, ORC® and Caustic-activated Persulfate delivered per location	grams	--	• Semi-annually

III. GROUNDWATER MONITORING PROGRAM

The Discharger shall conduct groundwater monitoring program at the site. Groundwater samples shall be collected from upgradient area groundwater monitoring wells MW-3, MW-5, MW-8 and MW-14; source area groundwater monitoring wells MW-1 and MW-11, and downgradient area groundwater monitoring wells MW-12, MW-15, and newly installed monitoring well MW-17 (Figure 2) on a semi-annual schedule to monitoring the effectiveness of the in-situ groundwater remediation. Groundwater shall be monitored for the duration of the remediation before and after the injection of chemical oxidant in accordance with the following discharge monitoring program:

CONSTITUENT	UNITS ¹	TYPE OF SAMPLE	MINIMUM FREQUENCY OF ANALYSIS
Total petroleum hydrocarbons as gasoline (TPHg)	µg/L	Grab	Semi-annual
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)	µg/L	Grab	Semi-annual
Methyl tertiary butyl ether (MTBE), Tertiary butyl alcohol (TBA), Tertiary amyl methyl ether (TAME), Di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE)	µg/L	Grab	Semi-annual
Naphthalene, Methane, Ethanol,	µg/L	Grab	Semi-annual

Ethanol, Formaldehyde Acetone			
Total dissolved solids, Arsenic, Boron, Chloride, Bromide, Sulfate, Lead, Nickel, Cadmium, Manganese	mg/L	Grab	Semi-annual
Oxidation-reduction potential ²	Millivolts	Grab	Semi-annual
Dissolved Oxygen ²	µg/L	Grab	Semi-annual
Dissolved ferrous iron	µg/L	Grab	Semi-annual
Total Chromium and chromium six ³	µg/L	Grab	Semi-annual
pH ²	pH units	grab	Semi-annual
Temperature ²	F/ C	grab	Semi-annual
Groundwater Elevation	Feet, mean sea level and below ground surface	In-situ	Semi-annual

¹ mg/L: milligrams per liter; µg/L: micrograms per liter; µmhos/cm: microohms per centimeter; °F: degree Fahrenheit.

² Field instrument may be used to measure this parameter.

³ The Discharger is required to monitor for total chromium and chromium six in the baseline, second and fourth semi-annual sampling. If detected at any of these sampling events, the total chromium and chromium six must be monitored semi-annually thereafter.

All groundwater monitoring reports must include, at a minimum, the following:

- a. Well identification, date and time of sampling;
- b. Sampler identification, and laboratory identification;
- c. Semi-annual observation of groundwater levels, recorded to 0.01 feet mean sea level and groundwater flow direction.

IV. MONITORING FREQUENCIES

Specifications in this monitoring program are subject to periodic revisions. Monitoring requirements may be modified or revised by the Executive Officer based on review of monitoring data submitted pursuant to this Order. Monitoring frequencies may be adjusted to a less frequent basis or parameters and locations dropped by the Executive Officer if the Discharger makes a request and the request is backed by statistical trends of monitoring data submitted.

V. CERTIFICATION STATEMENT

Each report shall contain the following completed declaration:

"I certify under penalty of law that this document, including all attachments and supplemental information, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment".

Executed on the _____ day of _____ at _____.

(Signature)

(Title)"

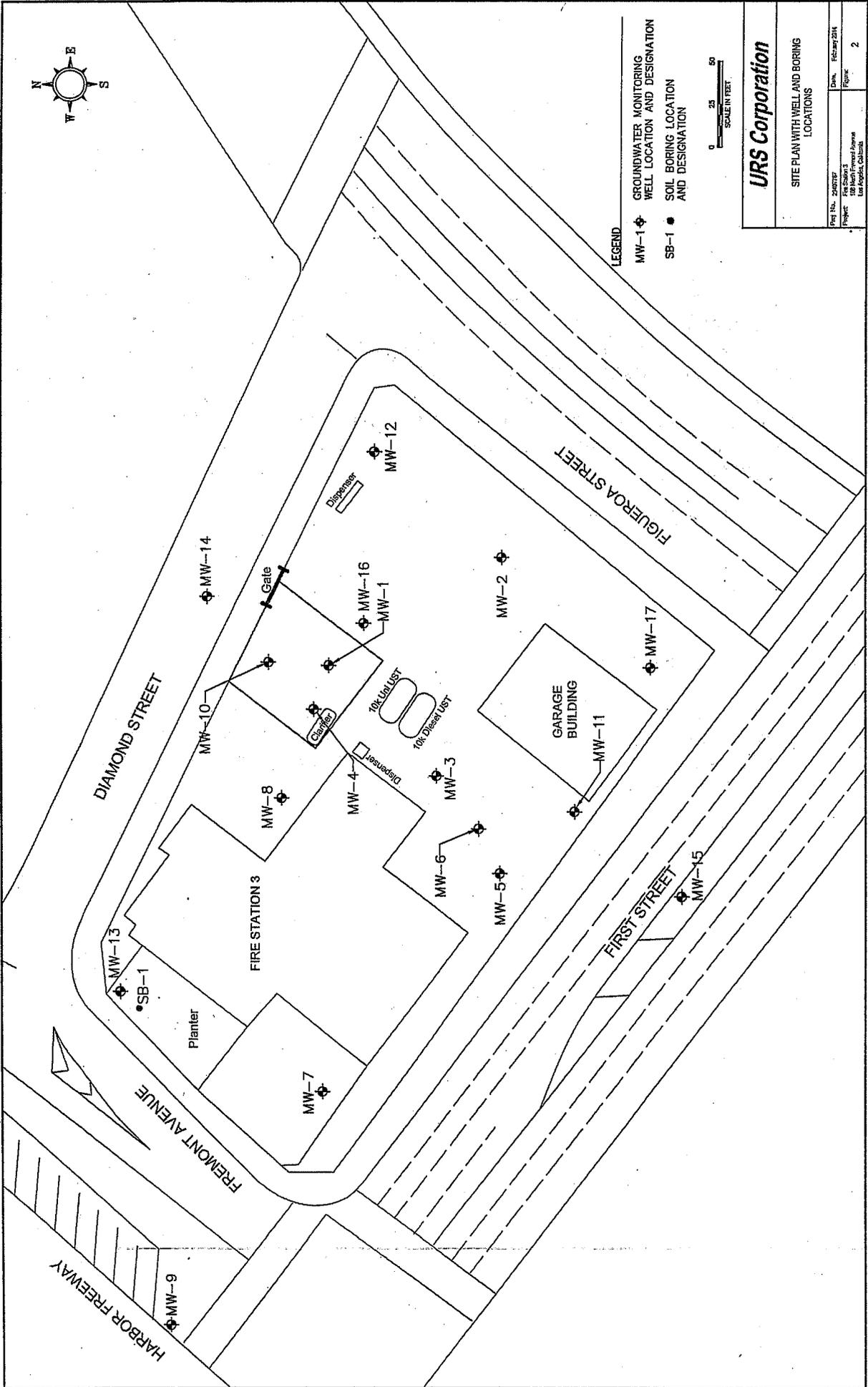
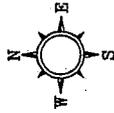
VI. PUBLIC DOCUMENTS

These records and reports are public documents and shall be made available for inspection during normal business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region, upon request by interested parties.

Ordered by:

Samuel Unger
Samuel Unger, P.E.
Executive Officer

Date: April 2, 2014



LEGEND

- MW-1 GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- SB-1 SOIL BORING LOCATION AND DESIGNATION



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SITE PLAN WITH WELL AND BORING LOCATIONS

Proj. No.	20070112	Date	February 2014
Project	5th Street 180 North Fremont Avenue Los Angeles, California	Figure	2